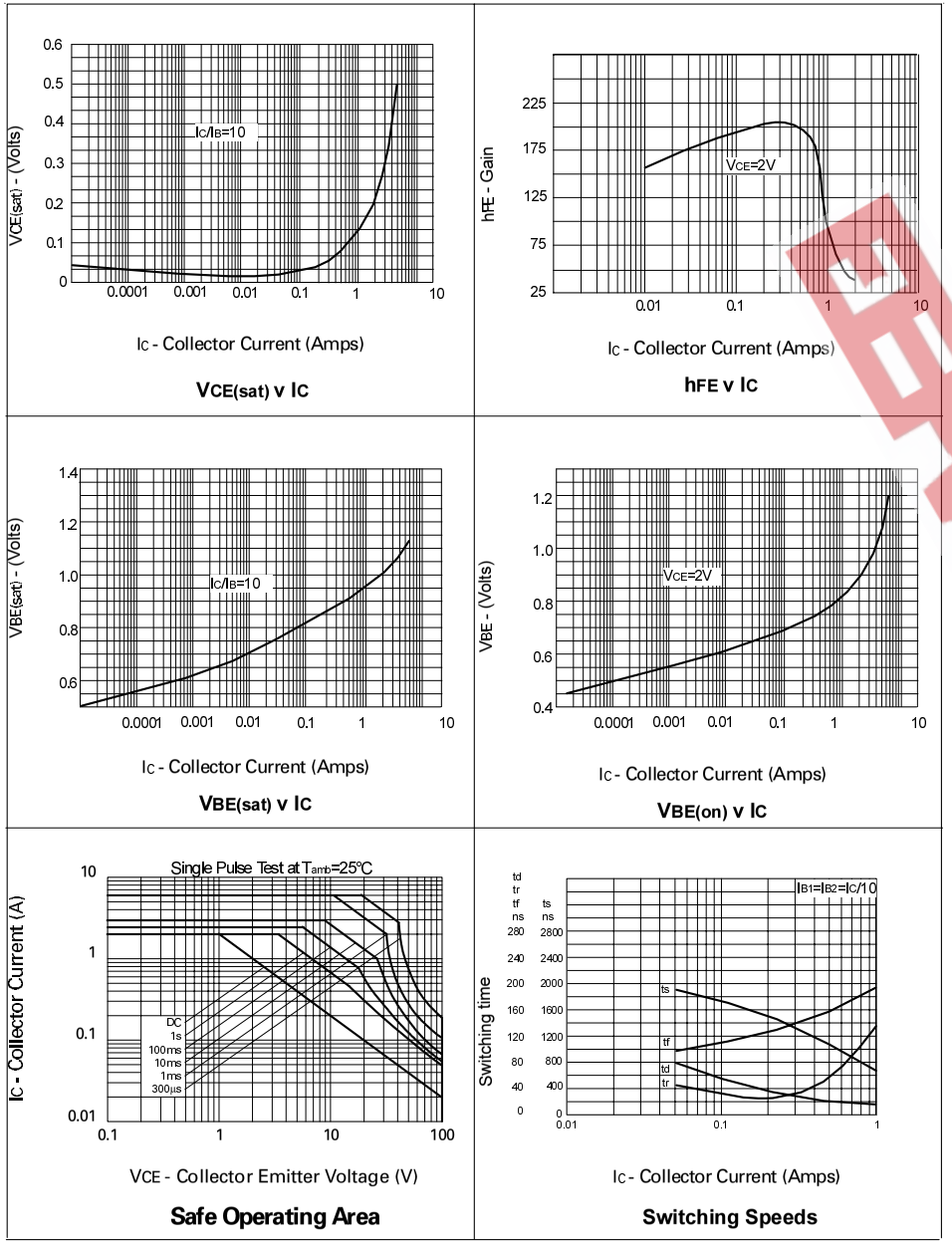
## TYPICAL CHARACTERISTICS






# SOT223 NPN SILICON PLANAR HIGH PERFORMANCE TRANSISTOR

FZT653

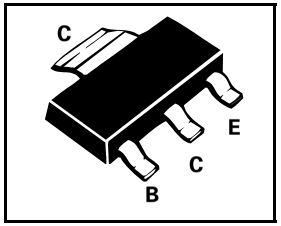
ISSUE 3– FEBRUARY 1995

FEATURES

* Low saturation voltage

COMPLEMENTARY TYPE – FZT753

PARTMARKING DETAIL – FZT653




## ABSOLUTE MAXIMUM RATINGS.

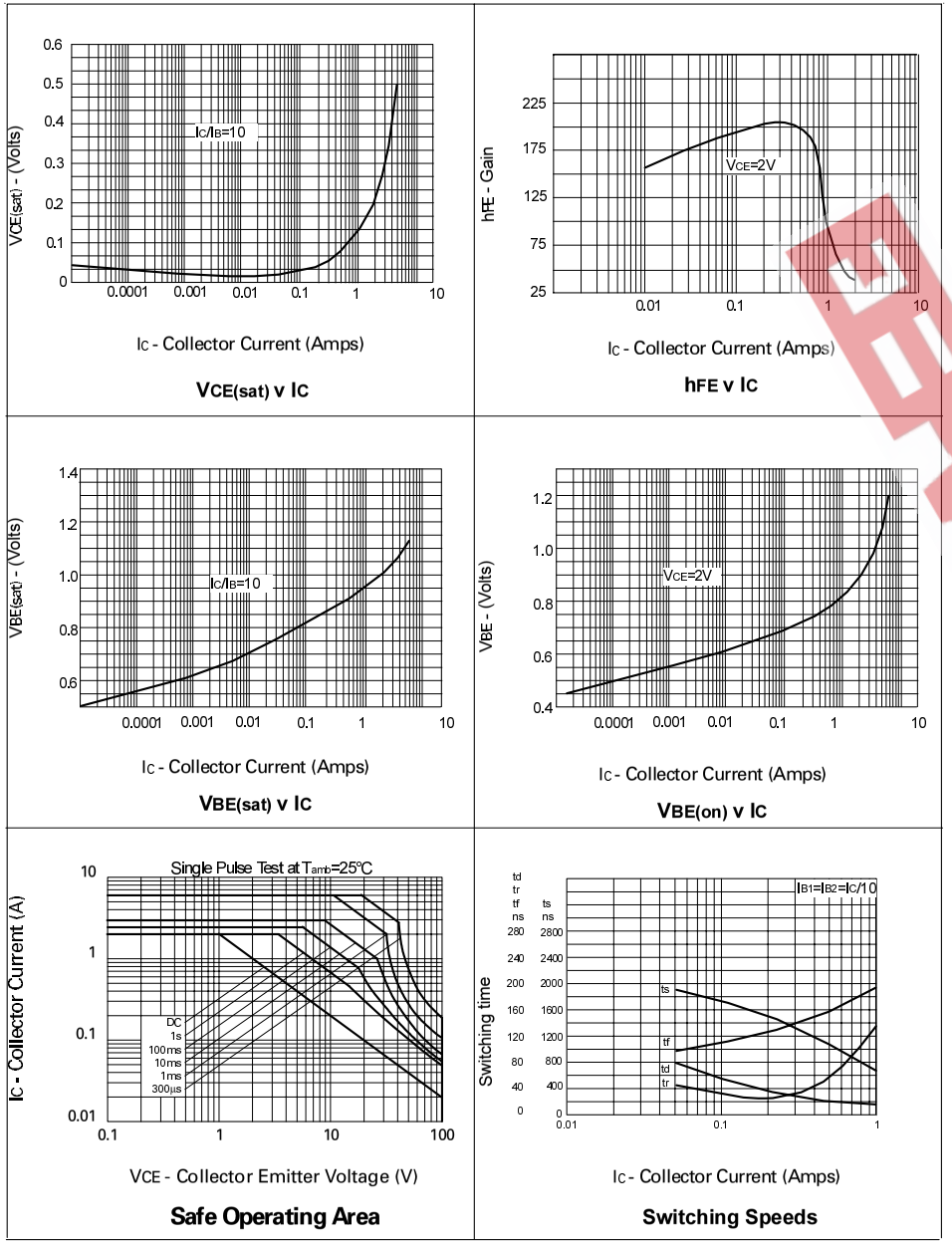
| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 120 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 100 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | V |
| Peak Pulse Current | $I_{CM}$ | 6 | A |
| Continuous Collector Current | $I_C$ | 2 | A |
| Power Dissipation at $T_{amb}$=25°C | $P_{tot}$ | 2 | W |
| Operating and Storage Temperature Range | $T_j$:$T_{stg}$ | -55 to +150 | °C |

## ELECTRICAL CHARACTERISTICS (at $T_{amb}$ = 25°C unless otherwise stated).

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 120 | | | V | $I_C$=100µA |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 100 | | | V | $I_C$=10mA* |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | | | V | $I_E$=100µA |
| Collector Cut-Off Current | $I_{CBO}$ | | | 0.1<br>10 | µA<br>µA | $V_{CB}$=100V<br>$V_{CB}$=100V,$T_{amb}$=100°C |
| Emitter Cut-Off Current | $I_{EBO}$ | | | 0.1 | µA | $V_{EB}$=4V |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | 0.13<br>0.23 | 0.3<br>0.5 | V<br>V | $I_C$=1A, $I_B$=100mA*<br>$I_C$=2A, $I_B$=200mA* |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | 0.9 | 1.25 | V | $I_C$=1A, $I_B$=100mA* |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | 0.8 | 1.0 | V | $I_C$=1A, $V_{CE}$=2V* |
| Static Forward Current Transfer Ratio | $h_{FE}$ | 70<br>100<br>55<br>25 | 200<br>200<br>110<br>55 | 300 | | $I_C$=50mA, $V_{CE}$=2V*<br>$I_C$=500mA, $V_{CE}$=2V*<br>$I_C$=1A, $V_{CE}$=2V*<br>$I_C$=2A, $V_{CE}$=2V* |
| Transition Frequency | $f_T$ | 140 | 175 | | MHz | $I_C$=100mA, $V_{CE}$=5V<br>f=100MHz |
| Output Capacitance | $C_{obo}$ | | | 30 | pF | $V_{CB}$=10V, f=1MHz |
| Switching Times | $t_{on}$ | | 80 | | ns | $I_C$=500mA, $V_{CC}$=10V<br>$I_{B1}$=$I_{B2}$=50mA |
| | $t_{off}$ | | 1200 | | ns | |

*Measured under pulsed conditions. Pulse Width=300µs. Duty cycle ≤2%
Spice parameter data is available upon request for this device

## TYPICAL CHARACTERISTICS



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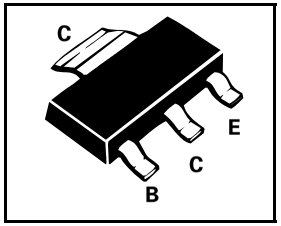


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